

*Proposed TDP Test modification. Modified and added text is shown in yellow highlight.*

#### 86.7.5.4 Transmitter and dispersion penalty (TDP)

Transmitter and dispersion penalty (TDP) is as defined in 52.9.10 with the following exceptions:

- a) Each optical lane is tested individually with all other lanes in operation;
- b) The test pattern is as defined in Table 86–16. As Pattern 3 is more demanding than Pattern 5 (which itself is the same or more demanding than other 40GBASE-R or 100GBASE-R bit streams) an item which is compliant using Pattern 5 is considered compliant even if it does not meet the required limit using Pattern 3;
- c) The transmitter is tested using an optical channel that meets the requirements of 86.7.5.4.1. This channel inserts a chromatic dispersion element in the form of a fiber with specific properties;
- d) The reference receiver sensitivity S is measured with the sampling instant displaced from the eye center by  $\pm 0.15$  UI and the lower S value used;
- e) The effect of the transversal filter is realised by a reference receiver / filter combination having a fourth order Bessel-Thomson filter response with a bandwidth of 6.63 GHz;
- f) P\_DUT is measured with the sampling instant displaced from the eye center by  $\pm 0.15$  UI and the larger TDP value is used.

##### 86.7.5.4.1 Channel requirements

The transmitter is tested using an optical channel that meets the requirements of Table 86–X. The channel is realised with a fiber of length chosen to meet the dispersion requirement.

To verify that the fiber has the correct amount of dispersion, the measurement method defined in IEC 60793-1-42 may be used. The measurement is made in the linear power regime of the fiber.

**Table 86-X – Transmitter compliance channel specifications**

PMD type	Dispersion <sup>a</sup> at 840 nm (max)	Effective modal bandwidth <sup>b</sup> at 850 nm (min)	Insertion loss <sup>c</sup>	Optical return loss <sup>d</sup> (max)
40GBASE-SR4	-10.8 ps/nm	10,000 MHz·km	Minimum	12 dB
100GBASE-SR10				

<sup>a</sup> The dispersion is calculated for the distance at the upper extreme of the operating range.

<sup>b</sup> Fiber meeting the requirements of 86.10.2 with differential mode delay  $\leq 0.066$  ps/m from  $R_{INNER} = 0 \mu\text{m}$  to  $R_{OUTER} = 23 \mu\text{m}$  measured per IEC 60793-1-49.

<sup>c</sup> There is no intent to stress the sensitivity of the BERT's optical receiver.

<sup>d</sup> The optical return loss is applied at TP2.